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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,869	12/21/2005	Thomas Henry Bell	5331-108	1398
23117 7590 03/23/2009 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203				
EXAMINER				
SCHNEIDER, CRAIG M				
ART UNIT		PAPER NUMBER		
3753				
MAIL DATE		DELIVERY MODE		
03/23/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/561,869

**Applicant(s)**

BELL, THOMAS HENRY

**Examiner**

CRAIG M. SCHNEIDER

**Art Unit**

3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 January 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6, 8-12, 14-18, 27, 29 and 30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-12, 14-18, 27, 29 and 30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 December 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/27/09 has been entered.

### ***Election/Restrictions***

2. The applicant has cancelled claim 28 which was drawn to a non-elected species. All claims directed to non-elected species have now been cancelled.

### ***Drawings***

3. The applicant is reminded that the drawings of record are dated 12/21/05.

4. Figures 1 and 2 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures.

Note: The drawings submitted on 8/25/08 for this objection will satisfy the above objection when the below objections are satisfied.

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: "303" located on page 18, line 21.

Note: The specification amendment dated 8/25/08 indicated the incorrect page (16 instead of 18). Therefore the drawing objection is still present on page 18.

6. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the cage of claim 1 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Note: The applicant is arguing that the cage is the arc shaped member that is positioned immediately to the right of the flexible member 9. This arc shaped member is the diaphragm valve 8. If this explanation overcame the drawing objection then a new drawing objection would be warranted in that both the cage and diaphragm valve are indicated as item "8".

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New

Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Specification***

7. The disclosure is objected to because of the following informalities:

On page 16, line 13 a paragraph was added on 8/25/08 that is a duplicate from page 18, line 13 with a minor change. This paragraph should be deleted.

On page 18, line 21 "303" should be --203--.

Appropriate correction is required.

Note: It is acknowledged that the applicant has asked the examiner to make these changes but the applicant is invited to do so in response to this office action.

***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 1-6, 8-12, 14-18, 27, 29, and 30 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The recitation in lines 9 and 10 of claim 1 of a "curved movable cage" and "that it is adapted to prevent a back

pressure from creating a localized distortion of the flexible member" does not have support in the originally filed specification. The specification refers to a cage but does not indicate that this cage is movable or curved and does not refer to a number in the figures to indicate what the cage is. The specification further does not disclose that the cage prevents localized distortion of the flexible member from back pressure; therefore the limitations are considered new matter.

10. Claim 30 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

11. Claim 30 recites the limitation "movable cage" in lines 1 and 2 to 3. There is insufficient antecedent basis for this limitation in the claim.

***Claim Rejections - 35 USC § 102***

12. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

13. Claims 1-6, 8-12, 18, and 27 are rejected as understood under 35 U.S.C. 102(b) as being anticipated by Chen (4,945,944).

Chen discloses a valve system (1) for use with a variable head of fluid, the valve system comprising a first diaphragm (51) and means for (7, 6, 631, 61, 4, and 41) controlling a position of the first diaphragm based on a fluid pressure associated with the variable head of a first fluid; the controlling means comprising a movable flexible member (63) and a substantially rigid and curved movable cage (71) that is adapted to prevent a back pressure from creating a localized distortion of the flexible member (col.

2, line 63 to col. 5, line 64). The cage (71) can be moved per threaded connection and the outer circumference is curved.

Regarding claim 2, wherein when the valve system is deployed the first diaphragm is located above the variable head of the first fluid as seen in Figure 6B.

Regarding claim 3, wherein the valve system is connected to a fluid supply line (2a) to the variable head of the first fluid such that the first diaphragm moves between an open position as seen in Figure 6A, wherein the first fluid is free to flow within the fluid supply line, and a closed position as seen in Figure 6B, wherein the first fluid is prevented from flowing within the fluid supply line.

Regarding claim 4, wherein the first diaphragm comprises a blocking means (chamber between 51 and 4) to assist the first diaphragm in moving to the closed position.

Regarding claims 5 and 27, wherein the means for transferring a fluid pressure associated with the variable head of the first fluid comprises a compressible second fluid (air)(col. 5, lines 3-17).

Regarding claim 6, wherein the compressible second fluid is contained within at least one tube (7) connected at a first end to the first diaphragm and positioned so that when in use the second end of the at least one tube is located below the surface of the head of variable first fluid as seen in Figure 6B.

Regarding claim 8, wherein the flexible member comprises a diaphragm valve (631), and wherein the at least one tube is connected to the first diaphragm via a diaphragm valve.

Regarding claim 9, wherein the controlling means further comprises one or more chambers (61 and chamber between 51 and 4) located between the diaphragm valve and the first diaphragm.

Regarding claim 10, wherein the first diaphragm comprises an aperture (511) that provides a means for communicating a sample of fluid taken from the supply line to the one or more chambers.

Regarding claim 12, wherein the valve system further comprises an adjuster (73 and 74) wherein the adjuster provides a means for varying the dependency of the position of the first diaphragm to the fluid pressure associated with the variable head of the first fluid.

Regarding claim 18, wherein the controlling means comprises a plunger (sealing surface of 631) that assists movement of the first diaphragm to the closed position.

Regarding claim 29, wherein the flexible member comprises a diaphragm valve that is coupled to the fluid pressure associated with the variable head of a first fluid, wherein increasing fluid pressure causes the diaphragm valve to move, and further comprising a plunger (sealing surface of 631) coupled to the diaphragm valve, wherein movement of the diaphragm valve causes the plunger to close an inlet hole.

Regarding claim 30, wherein the movable cage (631) is positioned between the plunger and the diaphragm valve, and wherein the movable cage prevents deformation of the diaphragm valve due to a backpressure acting on the diaphragm valve through the plunger. The movable cage has been changed in claim 1 to 631 for this claim.



***Claim Rejections - 35 USC § 103***

14. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

15. Claims 14 and 15 are rejected as understood under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Hostetler (4,344,456).

Chen discloses all the features of the claimed invention except that wherein the adjuster comprises a means for varying the resistance to activate the diaphragm valve and further wherein the means for varying the resistance to activate the diaphragm valve comprises a bias means and an adjustment screw wherein the position of the adjustment screw defines the resistance force applied by the bias means to the diaphragm valve. Hostetler discloses a valve system wherein the adjuster (30, 34, 38, 40, 42, 44, 46, 48, 50, and 52) comprises a means for varying the resistance (46) to activate the diaphragm valve and further wherein the means for varying the resistance to activate the diaphragm valve comprises a bias means (50) and an adjustment screw (46) wherein the position of the adjustment screw defines the resistance force applied by the bias means to the diaphragm valve (col. 3, lines 9-30 and col. 4, line 34 to col. 5, line 32).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a spring adjustment device as disclosed by Hostetler onto the diaphragm valve of Chen, in order to regulate the movement of the diaphragm valve.

16. Claims 16 and 17 are rejected as understood under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Tanikawa (2002/0124880).

Chen discloses all the features of the claimed invention except that wherein the valve system further comprises an automatic cut off means so that in the event of mechanical failure the first diaphragm is moved to the closed position and further wherein the automatic cutoff means comprises one or more sections of absorbent material such that when the first fluid is incident on the absorbent material expansion occurs so as to cause the first diaphragm to move to the closed position. Tanikawa discloses an absorbent material<sup>203</sup> that is used to close a valve (209) when the absorbent material comes into contact with a liquid as seen in Figure 2(a) and 2(b)(page 2, para. 21-22 and page 3, para. 32-33).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize an absorbent material as disclosed by Tanikawa below the diaphragm valve of Chen, in order to ensure that if the water level rises to the point of the diaphragm valve the absorbent material will close the valve as disclosed by Tanikawa.

#### ***Response to Arguments***

17. Applicant's arguments filed 1/27/09 have been fully considered but they are not persuasive. The applicant argues that the Chen reference fails to disclose a cage. The examiner has indicated the cage that is provided by Chen in the above rejection. This cage would perform the functional and structural claim language.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CRAIG M. SCHNEIDER whose telephone number is (571)272-3607. The examiner can normally be reached on M-F 8:00 -4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Greg Huson can be reached on (571) 272-4887. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. M. S./  
Examiner, Art Unit 3753  
March 19, 2009

/John Rivell/  
Primary Examiner, Art Unit 3753